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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/587,970	06/06/2000	Simon James Hurst	1-14962	9428

7590

12/04/2003

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EXAMINER

VINCENT, SEAN E

ART UNIT

PAPER NUMBER

1731

DATE MAILED: 12/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

### Office Action Summary

**Application No.**

09/587,970

**Applicant(s)**

HURST ET AL.

**Examiner**

Sean E Vincent

**Art Unit**

1731

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 November 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 42-58 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 42-58 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 June 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

#### Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

#### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_. 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 12, 2003 has been entered.

#### ***Claim Rejections - 35 USC § 112***

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Claim 44 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Titanium tetraalkoxide was not disclosed in example 16 as noted by the applicant or anywhere else in the originally filed specification and claims.

#### ***Claim Rejections - 35 USC § 103***

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 42, 43, 45 and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg et al (US 6027766).

6. The features of applicant's claims can be found in the abstract, drawings, col. 3, lines 32-66, col. 4, lines 30-63, col. 5, lines 18-46, col. 7, lines 1-11, the examples and the claims (see especially Table 6, sample H). Greenberg et al. does not teach the exact temperatures and thicknesses claimed. It would have been obvious to a person skilled in the art at the time the invention was made to use the claimed temperature range and produce the claimed thickness range because the specific process conditions recited are not critical but are merely optimal for the particular material being treated and they would be within the skill of the art to determine, *In re Aller et al.*, 105 U.S.P.Q. 233, 42 C.C.P.A. 824. It is the position of the Examiner that it would not require undue experimentation by a person of ordinary skill in the art at the time the invention was made to find these conditions beneficial.

7. Specifically, Greenberg's disclosure of a thickness range of from about 100 to 2500 Å (column 3 lines 62-64) overlaps the claimed thicknesses of less than 400 Å. It would have been obvious to expect thicknesses of less than 400 Å, given the disclosure of Greenberg et al. Likewise, Greenberg et al. disclosed temperatures of between 400 °C and 800 °C (col. 5, lines 41-46). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to select a temperature range of 645 °C to 720 °C, because the range was merely optimal for the particular coating claimed.

8. Claim 44 is rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg et al. in view of Kimura et al (US 6110528).

9. Greenberg et al. teaches the features of applicant's claims except for the use of titanium tetraalkoxide as a fluid titania precursor. Kimura et al taught that titanium tetraalkoxide was a well known fluid titania precursor (see col. 4, lines 1-5). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use titanium tetraalkoxide in Greenberg et al. because it was well known in the art as shown by Kimura et al.

10. Claims 46-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Greenberg et al. in view of Sheel et al (WO 98/06675).

11. Greenberg et al teaches the invention of applicant's claims except for an ester oxygen source. Sheel et al taught methods of depositing titanium oxide coatings on float glass substrates by CVD wherein titanium tetrachloride and ethyl acetate are used as separate titanium and oxygen sources respectively (see pages 6-9, Examples 6 and 7, pages 22-23 and 25-27). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the precursors of Sheel et al in the CVD method of Greenberg et al because Sheel et al taught that the precursors enabled high conversion efficiency with low cost metal precursor compounds.

### ***Response to Arguments***

12. Applicant's arguments filed November 12, 2003 have been fully considered but they are not persuasive.

13. In response to the argument that Greenberg et al. was not a proper reference under 35 USC 102(a), the examiner agrees and the rejection in question is now proper under 35 USC 103.

14. In response to the argument that “titanium tetraalkoxide” is supported by a disclosure of titanium ethoxide, the examiner disagrees. An unknown, undefined number of other tetraalkoxides would satisfy the applicant’s claim language while only titanium ethoxide is supported. The originally filed disclosure does not support the full scope of “titanium tetraalkoxide”.

15. In response to applicant's argument that Kimura et al is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant’s endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Kimura et al was at least reasonably pertinent to the problem of producing titania films from fluid precursors.

16. In response to the argument that Sheel did not teach photocatalytic coatings, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

***Conclusion***

17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E Vincent whose telephone number is 703-305-3607. The examiner can normally be reached on M - F (8:30 - 6:00).
18. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P Griffin can be reached on 703-308-1164. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.
19. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.

A handwritten signature in black ink, appearing to be 'SE Vincent', with a long horizontal line extending to the right.

Sean E Vincent  
Primary Examiner  
Art Unit 1731

S Vincent